

FAIRDEAL CONSTRUCTION COMPANY (A)

DEWATERING

The Fairdeal Construction Company bid a sewage treatment plant for the City of Littleville based upon a vague contract drawing and information supplied by the architect-engineer. Underground conditions as to rock and subsurface water were considerably different from those upon which the bid was based. The Fairdeal Construction Company completed the job and submitted a claim to the City of Littleville. *

*Names are disguised.

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FAIRDEAL CONSTRUCTION COMPANY (A)

DEWATERING

One spring day, Mr. John Fairdeal, President of the Fairdeal Construction Company, was leafing through the Dodge Reports. His construction specialty was water and sewage treatment plants, preferably within the \$100,000-\$300,000 price range, and since he was just finishing a project, he was looking for another that fit his company's capabilities. Finally, he came upon a report indicating that the City of Littleville was accepting bids for a sewage treatment plant in two weeks. He sent for plans, specifications, and bid documents.

The quantity take-off was routine except for the site work, so Mr. Fairdeal set one day aside to visit the site with his superintendent, Carl Beam. Mr. Fairdeal was especially concerned about the core boring log shown on the sheet detailing the control house structure. (See Exhibit A-1)

"Carl," said Mr. Fairdeal, "bring along the hand auger with enough extension pipe to penetrate into that sand and clay layer. We need to know if the water table shown on the boring is perched water or whether it's under artesian pressure."

Perched water is isolated water entrapped above a layer of impervious soil such as a hard clay. Water under artesian pressure is water below the water table which is under pressure (hydrostatic head) because it is entrapped between impervious layers.

At the job site, Mr. Fairdeal and Mr. Beam were able to penetrate only five feet below grade with the hand auger. "We'll have to find another way of doing this because the perched water fills the hole and because the clay is very hard," said a tired Mr. Fairdeal.

The next day, Mr. Fairdeal called in a friend, Mr. Bill Sickem, a dewatering expert with the Littleditch Dewatering Company.

"Bill, are you going to bid the dewatering equipment for the Littleville job?" Mr. Fairdeal asked. Bill replied, "There doesn't seem to be much equipment required, but I'll

give you a price if you want one." "If the water table shown in the boring log on the plans is under hydrostatic head, there could be a big equipment requirement. Can you take your drill rig over and make a boring at the site?" inquired Mr. Fairdeal. Bill answered, "The job is too far away for that. Why don't we call the engineer and get some additional information on the core boring?"

A telephone call was made to the architect-engineer who referred Mr. Fairdeal to Mr. Jack Drill, manager of the testing laboratory that made the boring. The following telephone conversation resulted (with Mr. Sickem on an extension phone):

"Mr. Drill, this is Mr. John Fairdeal of the Fairdeal Construction Company. We are bidding the sewage treatment plant for the City of Littleville and desire some information on the boring log as shown on Exhibit A-1 of the contract drawings entitled Control House Underground Details."

"Let me get my file." After a short pause, "Go ahead."

"Is the -2.5 foot water table perched above the clay layer or did it rise in your casing to that level?"

"This is perched water. There was water in the bottom six feet of our casing after the hole was completed, but we left the casing in overnight and the water didn't rise any higher."

"In other words, the static head was at approximately elevation 103 to 104."

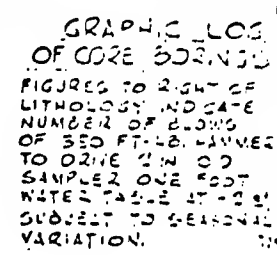
"That is correct."

"Why did you stop at -25 feet? Did you hit rock?"

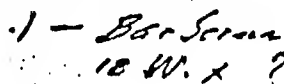
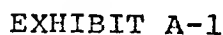
"We encountered no rock. This was the maximum depth specified by the engineer."

Mr. Fairdeal then thanked Mr. Drill and hung up. He turned to Bill Sickem and said, "It looks like you were right. We should be able to dewater this hole with a small wellpoint system. We may even be able to use only a sump pump. At least we know that dewatering should be no problem."

Pertinent portions of the specifications are included in Exhibit A-2.



SCALE: $\frac{1}{2}'' = 1'-0''$



CONTROL HOUSE UNDERGROUND DETAIL

— Extracts from Construction Contract between City of Littleville and the Fairdeal Construction Company.

Examination of Plans, Specifications and Site of Work. The Bidder is required, before submitting his proposal, to visit the site of the proposed work and familiarize himself with the nature and extent of the work and any local conditions that may in any manner affect the work to be done and the equipment, materials and labor required. He is also required to examine carefully the plans and specifications and form of contract and bond and to inform himself thoroughly regarding any and all conditions and requirements that may in any manner affect the work to be performed under the contract. Ignorance on the part of the Contractor will in no way relieve him of the obligations and responsibilities that are assumed under the contract.

Changes in the Work. The Owner, without invalidating the Contract, may order extra work or make changes by altering, adding to, or deducting from the work, the contract sum being adjusted accordingly. All such work shall be executed under the conditions of the original Contract except that any claim for extension of time caused thereby shall be adjusted at the time of ordering such changes.

In inspecting, the Engineer shall have authority to direct prosecution of the work, not involving extra cost, and not inconsistent with the purpose of the work, but otherwise, except in an emergency endangering life or property, no extra work or change shall be made unless in pursuance of a written order from the Engineer, stating that the Owner has authorized the extra work or change, and no claim for an addition to the contract sum shall be valid unless so ordered.

Claims for Extras. If the Contractor claims that any instructions constitute change in the work to be done under the contract involving extra cost, he shall give the Engineer written notice thereof before proceeding to execute the work. No such claims shall be valid unless so made.

Contractor's Responsibility for the Work. Until the final acceptance of the improvement by the Owner, it shall be under the charge and care of the Contractor. He shall take every precaution to protect the work from damage by the elements or from any cause whatsoever and he shall repair and make good at his own expense any such damage. He shall provide and maintain suitable, strong and substantial barricades and signs wherever necessary, which signs and barricades shall be kept lighted from sunset to sunrise with suitable red lights. The Contractor shall save and keep harmless the Owner and his employees from any and all claims for damage to persons or property sustained during the prosecution of the work.

So that the Owner may be advised at regular intervals of the status of the work under construction, the Contractor shall furnish to the Engineer all data which he has available that is necessary or desirable to the preparation of such a report.

Arbitration. If the Owner, through the Engineer, and the Contractor fail to agree on decisions of either in interpretation of the contract, each may select a disinterested party to serve on a three-member board of Arbiters, the third member elected by the appointed two. Parties to the contract agree to be bound by the decision of the board.

Verification of Existing Conditions. Each bidder shall examine personally and verify all existing conditions prior to submission of a bid. Any disclosure of unknown conditions affecting the cost of the work shall be stipulated in the proposal.

Earthwork. The Contractor shall perform all excavation of every description and of whatever substances encountered, to the depth indicated on the drawings or as otherwise specified. Topsoil shall be separated from subsoil and reserved for top dressing after backfill is complete. During excavation, material suitable for backfilling shall be piled in an orderly manner a sufficient distance from the banks of the trench to avoid overloading. All excavated materials not required or suitable for backfill shall be removed and wasted as indicated on the drawings or as directed. Such grading shall be done as may be necessary to prevent surface water from flowing into trenches or other excavations, and any water accumulating therein shall be removed by pumping or well pointing. Unless otherwise indicated, excavation shall be by open cut except that short sections of a trench may be tunneled if the pipe or duct can be safely and properly installed and backfill can be properly tamped in such tunnel sections. Dewater all excavations in which a wet trench will be detrimental to the construction, such as concrete pouring, clay tile and concrete pipe jointing, or if recommended by the manufacturers of the materials to be installed therein. Adjust routes to avoid conflict with permanent construction and other utilities, as required.

There was no changed conditions clause similar to paragraph 12.1.6, American Institute of Architects Form A-201 or paragraph 4, General Services Administration Standard Form 23-A.

FAIRDEAL CONSTRUCTION COMPANY (B)

DEWATERING

The Fairdeal Construction Company was low bidder on the Littleville job by about 5 percent.

Since the control building was the only deep structure on the job, Mr. Fairdeal decided to give its completion first priority. He explained his dewatering plan to Mr. Carl Beam, his job superintendent.

"We'll use a bulldozer to remove the top four feet of soil, pushing a clay bank around the excavation. This clay bank will keep the perched water from running into the excavation. We'll then dig down to elevation 112 using our clamshell, and install our dewatering equipment at this level. You should be able to auger down to the water table from this point. When you hit water, call me, and we'll decide if we need to wellpoint or sump."

Several days later Mr. Beam called Mr. Fairdeal. "We hit water at elevation 104. It looks as if we'll need to wellpoint. Send us the small wellpoint system."

"It will be there in the morning," Mr. Fairdeal replied.

The next morning as Mr. Fairdeal walked into the office the telephone was ringing. It was Carl Beam, "Mr. Fairdeal, you better get up here right away. When I came to the jobsite this morning the excavation was full of water and running over the sides."

"I'm leaving the office now."

Mr. Fairdeal arrived on the jobsite several hours later with only one speeding citation in his pocket. After viewing the expanse of water in the excavation, Mr. Fairdeal walked over to Carl Beam and said, "That dewatering system delivered this morning isn't going to do the job, and neither is the money I have for dewatering in my estimate."

"What do we do now, Mr. Fairdeal?" Carl Beam asked.

FAIRDEAL CONSTRUCTION COMPANY (C)

DEWATERING

"Let's try to sump the water out of the hole with the wellpoint pump and then jet down to see what we hit," Mr. Fairdeal answered. "I wonder if there is rock down there where it isn't supposed to be."

Rock was located at elevation 103.

The contractor immediately notified the City of Littleville of the change in conditions and requested additional funds to complete the job. The city engineer hired an independent testing laboratory to make core borings at the site. The location of these borings is shown on Exhibit C-1 and the boring logs are shown on Exhibit C-2.

Several days after the presentation of this evidence to the City Commission, the contractor received a letter from the city stating, in part, "We see no evidence of a changed condition in this contract. We expect the project to be completed within the time limit and at the cost specified in our contract."

Mr. Fairdeal then requested the city to arbitrate, but was told there was nothing to arbitrate. Mr. Fairdeal made an appointment with his lawyer.

(Unimproved)
Man Hole #1
El. of Cover 123.8'

Water Elev.
122.22
(May, 1965)

22'-10"

T.H. #1

Boil in Rock

Limits of proposed
Lift Station

T.H. #2

21'-4"

93'± Width of Excavation

84'± Length of Excavation

Edge of Excavation

Edge of Excavation

SPOIL
FROM
EXCAVA-
TION.

LOCATION OF TEST HOLES

EXHIBIT C-1

T.H.#1 T.H.#2
 Elevation of Water 122.22 ft.

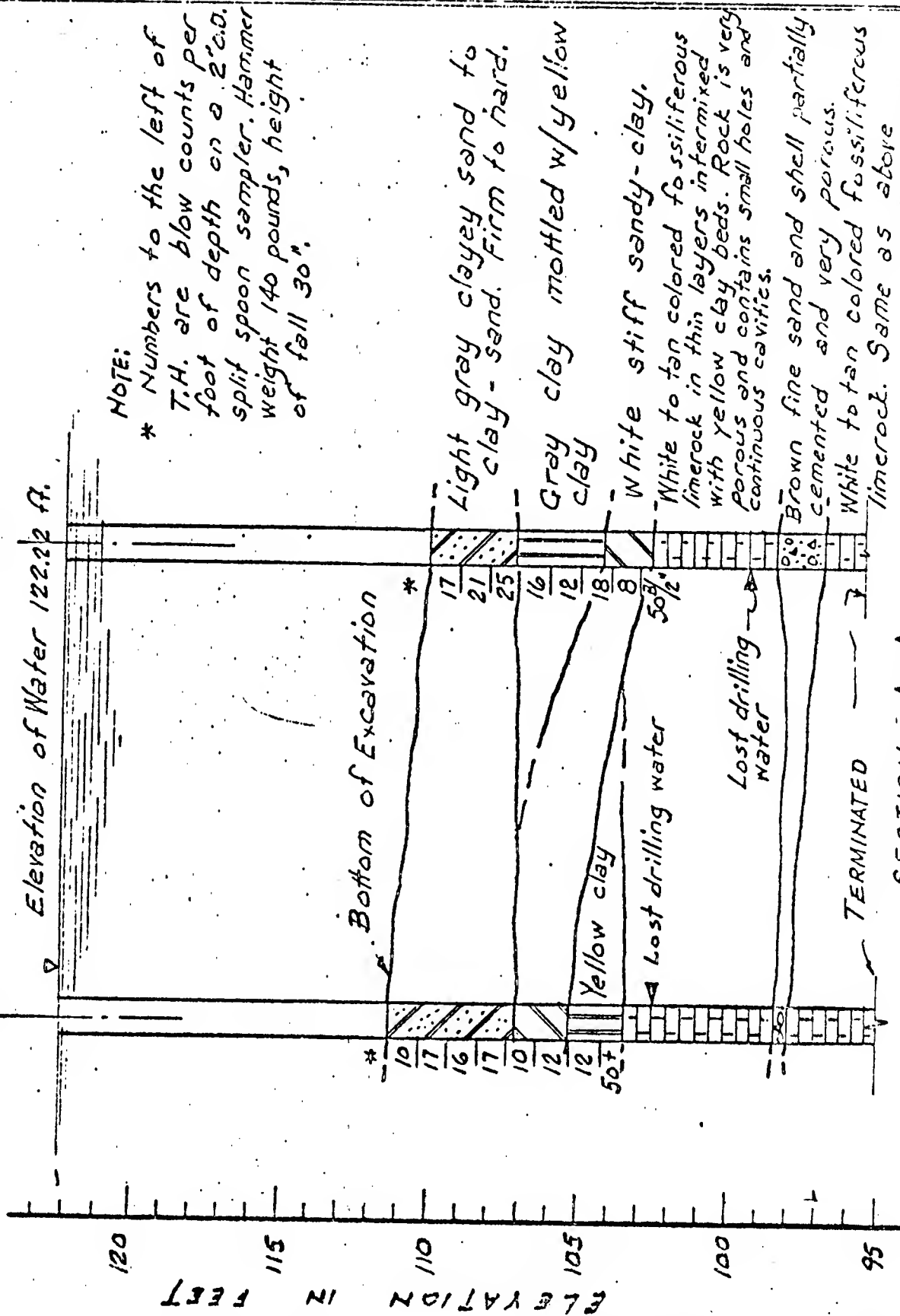


EXHIBIT C-2

INSTRUCTOR'S NOTE

Fairdeal Construction Company - Dewatering

The Fairdeal Construction Company - Dewatering case is useful in a construction curriculum. It can be used to bring out the construction problems encountered in working underground and the contractual aspects of encountering a changed condition.

Part A describes the job of building a sewage treatment plant, to include a cross-section of the underground portion and pertinent contract provisions. It also outlines Mr. Fairdeal's steps to determine the underground conditions. There are two aspects to Part A, either or both of which can be brought out in class:

Adequacy of Mr. Fairdeal's site investigation. Sample questions:

What three methods did Mr. Fairdeal employ to determine underground conditions?

What was the discrepancy between the grade on the boring log and that on the cross-section?

Where was the boring on the core boring log taken?
(Answer: Unknown. It was not shown on Exhibit A-1 or anywhere else in the contract drawings.)

Why did Mr. Fairdeal place so much emphasis on "perched water" vs. "water under hydrostatic head?"

Contractual aspects. Sample questions:

Two portions of the contract conditions (Exhibit A-2) mention investigations by the contractor. What were they? (1st para., p. 1 and 2nd para., p. 2.)

What was the real intention of the City of Littleville with respect to encountering a changed condition? How does this differ from the usual method?

If you were Mr. Fairdeal, would you have bid the job in the light of Exhibit A-2?

Part B describes Mr. Fairdeal's plan for excavation and dewatering and tells what happened on the site. Sample questions:

Instructor's Note

Was the spread between the two low bidders excessive?

What was Mr. Fairdeal's plan for doing the job in the field.

What was the result?

If you were Mr. Fairdeal, what would you do on the job? with respect to the contract?

Part C relates how rock was encountered at a higher elevation than Mr. Fairdeal had expected, how the City made some new borings, and how Mr. Fairdeal tried to obtain an extra payment for the changed condition, but to no avail. Sample questions:

How would Mr. Fairdeal complete the job physically?

What is the discrepancy between the borings in A-1 and C-2?

How do you account for the discrepancy for the core borings in Exhibits A-1 and C-2? (Note: Emphasize that the location of borings in C-2 is positively known as shown in C-1; the location of borings in A-1 is not known.)

Why did the City refuse to pay Mr. Fairdeal's claim for an extra payment for the changed condition, and also refuse to arbitrate?

Knowing what you do about the matter, and in the light of the contract conditions, do you think Mr. Fairdeal was entitled to additional compensation for the changed condition? Why?

Although not stated in the case, after Mr. Fairdeal's attorney filed the lawsuit, the City decided to settle with Mr. Fairdeal on the basis of a fair price for a changed condition. Question: "Why do you suppose the City settled rather than letting the case go to trial?"